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EXAMINER	
KIM, DAVID S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/764,516	AUBIN ET AL.
	Examiner	Art Unit
	David S. Kim	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 14 September 2007.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Applicant's response to the rejection of **claims 17-32** under 35 U.S.C. 112, first paragraph, in the previous Office Action (mailed on 16 June 2007) is noted and appreciated. Applicant responded by amending the claims. Applicant's response overcomes the previous enablement issue. Accordingly, the previous rejection is presently withdrawn.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claims 17-23** rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In independent claim 17, "the computer readable medium comprising:...computer executable instructions" is used where "the computer executable instructions comprising:...computer executable instructions" may be intended. That is, a computer readable medium is a tangible object that cannot generally *comprise* abstract concepts such as instructions. Accordingly, claim 17 and its dependent claims are not in the proper form for a computer readable medium claim.

4. **Claims 24-32** rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In independent claims 24, 30, and 31, "A computer readable medium having computer executable instructions for..." is used where "A computer readable medium having computer executable instructions *stored thereon for execution by a computer processor, for, when executed...*" (refer to similar language in independent claim 17) may be intended. That is, a computer readable medium is a tangible object that cannot generally *have*, or possess, abstract concepts such as instructions. Accordingly, claims 24, 30, 31, and their dependent claims are not in the proper form for a computer readable medium claim. However, a computer readable medium does *store* instructions for execution by a computer processor. Notice the similar language in independent claim 17.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. **Claims 1-4, 8-9, 11, 17-20, 24-25, and 27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iovanna et al. (U.S. Patent Application No. US 2006/0209785 A1, hereinafter "Iovanna") in view of Nasrallah et al. ("NetCalc6 Tutorial and a Preview of NetCalc7", hereinafter "Nasrallah").

Regarding claim 1, Iovanna discloses:

A method for co-modelling a packet network and an optical network over which the packet network operates, the packet network representing a plurality of packet links between packet network nodes and the optical network representing a plurality of optical links between optical network nodes, the method comprising the steps of:

(1) generating a cost parameter (520 in Fig. 5; using this cost parameter implies that it is "generated" before it is used) comprising a cost value for each packet link (loop for other links through step 545 in Fig. 5) based on packet network topology information (nodes in paragraph [0066]) and packet traffic information (data packet in paragraph [0066]) and

(2) generating a basic optical capacity (paragraph [0071]; using this basic optical capacity implies that it is "generated" before it is used) comprising a capacity value for each optical link (loop for other links through step 545 in Fig. 5) based on optical network topology information (paragraph [0069]) and the cost parameter (paragraph [paragraph 0069]).

Iovanna does not expressly disclose:

said packet network being a simulated packet network;

said optical network being a simulated optical network; and

the cost parameter comprising a basic packet capacity.

Regarding the *simulated* packet network and the *simulated* optical network, simulated networks are well known in the art, as shown by Nasrallah ("network design" on slide 9). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ simulated versions of the networks of Iovanna. One of ordinary skill in the art would have been motivated to do this to test the routing strategies and algorithms of Iovanna (paragraph [0028]) before deploying them into actual networks.

Regarding the cost parameter, notice that this parameter may refer to capacity (Iovanna, paragraphs [0067-0068]). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a cost parameter that comprises a basic packet capacity. One of ordinary skill in the art would have been motivated to do this since one intuitive way to express a cost parameter is in terms of capacity/bandwidth. That is, capacity/bandwidth of a link is a limited resource that provides a constraint for traffic flows. When one discusses the cost of a traffic flow to a link, one generally considers the cost of that traffic flow to the available capacity/bandwidth of that link.

Regarding claim 2, Iovanna in view of Nasrallah discloses:

A method for co-modelling according to claim 1, wherein the step of generating a basic packet capacity further comprises the steps of:

(1) combining the packet network topology information in the form of a packet network topology input (e.g., the consideration of any two nodes in paragraph [0066]) and the packet traffic information in the form of a packet traffic matrix input (a matrix is a common way to tabulate links and their respective traffic assignments; notice the treatment of each link in paragraph [0076]) to create the simulated packet network; and

(2) assigning each packet link (loop for other links through step 545 in Fig. 5) of the simulated packet network a flow to create the basic packet capacity for the simulated packet network (e.g., 520 in Fig. 5;); and

wherein the step of generating a basic optical capacity further comprises the steps of:

(3) combining the optical network topology information in the form of an optical network topology input (e.g., the consideration of the physical level in paragraph [0069]) and the basic packet capacity (see the treatment of this limitation in claim 1 above) to form the simulated optical network; and

(4) assigning each optical link (loop for other links through step 545 in Fig. 5) of the simulated optical network a flow to create the basic optical capacity for the simulated optical network (notice the treatment of each link in paragraph [0076]).

Regarding claim 3, Iovanna in view of Nasrallah discloses:

A method for co-modelling according to claim 2, the method further comprising the steps of:

(1) supplying the packet network topology input (implied by the incorporation of the packet network topology input in claim 2);

(2) supplying the packet traffic matrix (implied by the incorporation of the packet traffic matrix in claim 2);

(3) supplying the optical network topology (implied by the incorporation of the optical network topology in claim 2).

Regarding claim 4, Iovanna in view of Nasrallah discloses:

A method for co-modelling according to claim 2, further comprising generating the packet network topology input, the packet traffic matrix input and the optical network topology input for use in co-modelling the simulated packet network and the simulated optical network over which the simulated

packet network operates (generation of these limitations is implied by the incorporation of these limitations in claim 2).

Regarding claim 8, claim 8 is a method claim that corresponds largely to the method claim 1. Therefore, the recited steps in method claim 1 read on the corresponding steps in method claim 8. Claim 8 also includes limitations absent from claim 1. Iovanna in view of Nasrallah also discloses these limitations:

(3) performing analysis on the simulated packet network and the simulated optical network over which the simulated packet network operates (e.g., 565 in Fig. 5, performance comparisons in Figs. 6-9; analysis implied by "state information" in paragraphs [0062-0063]; "analysis" in paragraph [0066]; "check" in paragraph [0071]).

Regarding claim 9, claim 9 is a method claim that introduces limitations that correspond to the limitations introduced by method claim 2. Therefore, the recited steps in method claim 2 read on the corresponding steps in method claim 9.

Regarding claim 11, Iovanna in view of Nasrallah discloses:

A method for co-modelling and analyzing according to claim 8, wherein the step of performing analysis on the simulated packet network and the simulated optical network over which the simulated packet network operates comprises network capacity planning of the simulated packet network and the simulated optical network over which the simulated packet network operates (performance comparisons in Figs. 6-9).

Regarding claims 17-20, 24-25, and 27, claims 17, 18, 19, 20, 24, 25, and 27 are computer usable medium claims that introduce limitations that correspond to the limitations introduced by method claims 1, 2, 3, 4, 8, 9, and 11, respectively. Therefore, the recited steps in method claims 1-4, 8-9, and 11 read on the corresponding limitations in computer usable medium claims 17-20, 24-25, and 27.

8. **Claims 5-7 and 21-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iovanna in view of Nasrallah as applied to the claims above, and further in view of the admitted prior art (hereinafter the "APA").

Regarding claim 5, Iovanna in view of Nasrallah discloses:

A method for co-modelling according to claim 2, wherein the packet network topology input comprises information regarding a plurality of routers (routers 10-15 in Fig. 2) in the simulated packet network, information regarding source-destination router ordered pairs in the simulated packet network (e.g., pair of nodes in paragraph [0077]), and information regarding a plurality of packet links in the simulated packet network (e.g., link information in paragraph [0076]).

However, Iovanna in view of Nasrallah does not expressly disclose:

wherein assigning each packet link of the simulated packet network a flow comprises the steps of:

(1) setting capacity to zero for all packet links;

(2) performing a series of steps, as follows, for each source-destination router ordered pair;

A. determining a shortest packet path between routers;

B. establishing a source-destination packet traffic flow based on the shortest packet path; and

C. incrementing capacity of each packet link traversed by the packet traffic flow; and

(3) increasing capacity of packet links per packet network engineering guidelines.

Regarding "setting capacity to zero for all packet links", a zero setting is a common default value for computations. So, this would be an obvious variation.

Regarding "series of steps" for each pair, it would be obvious to perform route computation (e.g., paragraph [0077]) for each pair for the purpose of thoroughly computing routes for all pairs.

Regarding steps A and B, the APA teaches that these steps correspond to known traffic engineering techniques (APA, p. 14, l. 12-19). So, obvious variations could employ these techniques for their known benefits.

Regarding step C, one would obviously increment the capacity assignment for the packet links traversed by the packet traffic flow from zero to their assignment values.

Regarding "increasing capacity", one would obviously do so to maximize the capacity for the packet links for maximum traffic throughput.

Regarding claim 6, Iovanna in view of Nasrallah discloses:

A method for co-modelling according to claim 2, wherein the optical network topology input comprises information regarding a plurality of cross-connect switches (OXCs 20-25 in Fig. 2) in the simulated optical network and information regarding a plurality of optical links (e.g., physical level in paragraph [0069]) in the simulated optical network.

However, Iovanna in view of Nasrallah does not expressly disclose:

wherein assigning each optical link of the simulated optical network a flow comprises the steps of:

(1) setting capacity to zero for all optical links;

(2) performing a series of steps, as follows, for each packet link between two routers:

A. determining a shortest optical path between cross-connect switches supporting the two routers;

B. establishing an optical connection to support the packet link; and

C. incrementing capacity of each optical link traversed by the optical connection; and

(3) increasing capacity of optical links per optical network engineering guidelines.

Regarding "setting capacity to zero for all packet links", a zero setting is a common default value for computations. So, this would be an obvious variation.

Regarding "series of steps" for each pair, it would be obvious to perform route computation (e.g., paragraph [0077]) for each pair for the purpose of thoroughly computing routes for all pairs.

Regarding steps A and B, the APA teaches that these steps correspond to known traffic engineering techniques (APA, p. 16, l. 9-18). So, obvious variations could employ these techniques for their known benefits.

Regarding step C, one would obviously increment the capacity assignment for the optical links traversed by the optical connection from zero to their current assignment values.

Regarding "increasing capacity", one would obviously do so to maximize the capacity for the optical links for maximum traffic throughput.

Regarding claim 7, claim 7 is a method claim that introduces limitations that correspond to the limitations introduced by method claim 6. Therefore, the recited steps in method claim 6 read on the corresponding steps in method claim 7.

Regarding claims 21-23, claims 21, 22, and 23 are computer usable medium claims that introduce limitations that correspond to the limitations introduced by method claims 5, 6, and 7, respectively. Therefore, the recited steps in method claims 5-7 read on the corresponding limitations in computer usable medium claims 21-23.

9. **Claims 10 and 26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iovanna in view of Nasrallah as applied to the claims above, and further in view of Doverspike et al. (U.S. Patent Application Publication No. US 2004/0107382 A1, hereinafter "Doverspike").

Regarding claim 10, Iovanna in view of Nasrallah does not expressly disclose:

A method for co-modelling and analyzing according to claim 8, wherein the step of performing analysis on the simulated packet network and the simulated optical network over which the simulated packet network operates comprises analyzing survivability of the simulated packet network and the simulated optical network over which the simulated packet network operates.

However, such analysis of survivability is a common consideration for networks, as shown by Doverspike (e.g., consideration of fault recovery and restoration in paragraphs [0002-0004]). One of ordinary skill in the art would have been motivated to do this since it is generally known that modern telecommunication networks are reconfigurable and should provide for fast restoration from network failures (Doverspike, paragraph [0002]).

Regarding claim 26, claim 26 is a computer usable medium claim that introduces limitations that correspond to the limitations introduced by method claim 10. Therefore, the recited steps in method claim 10 read on the corresponding limitations in computer usable medium claim 26.

10. **Claims 12-16 and 28-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Iovanna in view of Nasrallah and Doverspike as applied to the claims above, and further in view of Ghani et al. ("On IP-over-WDM Integration", hereinafter "Ghani").

Regarding claims 12, Iovanna in view of Nasrallah and Doverspike discloses:

A method for co-modelling and analyzing according to claim 8, wherein the step of performing analysis on the simulated packet network and the simulated optical network over which the simulated packet network operates comprises performing survivability analysis (e.g., consideration of fault recovery and restoration in paragraphs [0002-0004]).

Iovanna in view of Nasrallah and Doverspike does not expressly disclose:

wherein an optical failure is known to occur within the simulated optical network, the step further comprising the steps of:

(1) establishing at least one protection mechanism for each point-to-point connection in the simulated packet network;

(2) performing a series of steps, as follows, for each optical link in the simulated optical network:

A. switching all affected packet traffic flow to an at least one protection mechanism;

B. incrementing capacity of each optical link traversed by the at least one protection mechanism; and

C. restoring initial capacity values; and

(3) summing capacity requirements.

Regarding "establishing at least one protection mechanism" for each connection, it would be obvious to consider at least one protection mechanism for each connection for proper consideration of fault recovery for each connection. Additionally, proper consideration for each connection can lead to improved channel availability, as shown by the maximally-disjoint teaching of Ghani (p. 78, col. 2, l. 5).

Regarding step A, switching all affected traffic to the protection mechanism is the obviously intuitive way to treat affected traffic. Otherwise, traffic not on the protection mechanism would be lost.

Regarding step B, one would obviously increment the capacity assignment for the optical links traversed by the protection mechanism to their current assignment values.

Regarding step C, one would obviously do so to resume the normal "faultless" network operation condition.

Regarding claim 13, claim 13 is a method claim that introduces limitations that correspond to the limitations introduced by method claim 12. Therefore, the recited steps in method claim 12 read on the corresponding steps in method claim 13.

Regarding claims 14, Iovanna in view of Nasrallah, Doverspike, and Ghani discloses:

A method for analyzing survivability of a simulated packet network (Iovanna, upper part of Fig. 2; Nasrallah, see the treatment of the "simulated" limitation under claim 1 above) and a simulated optical network over which the simulated packet network operates (Iovanna, lower part of Fig. 2; Nasrallah, see the treatment of the "simulated" limitation under claim 1 above), the simulated packet network representing a plurality of packet links between packet network nodes and the simulated optical network representing a plurality of optical links between optical network nodes, wherein an optical failure (e.g., Doverspike, "fiber cut" in paragraph [0030]) is known to occur within the simulated optical network and wherein packet link protection (e.g., Doverspike, 406 in Fig. 4) is performed in the simulated packet network.

Iovanna in view of Nasrallah, Doverspike, and Ghani does not expressly disclose:

the method comprising the steps of:

(1) establishing at least one back-up packet traffic flow tunnel for each packet link in the simulated packet transport network;

(2) performing a series of steps, as follows, for each optical link in the optical network:

A. taking an optical link out of service;

B. performing a series of steps, as follows, in a nested process for each packet link affected by the optical failure;

i. switching all packet traffic flow on the affected packet link to an at least one back-up packet traffic flow tunnel;

ii. incrementing capacity of each packet link traversed by the at least one back-up packet traffic flow tunnel; and

iii. incrementing capacity of each optical link traversed by an optical connection supporting the packet link; and

C. restoring initial capacity values; and

(3) summing packet link capacity requirements and optical link capacity requirements.

Regarding "establishing at least one back-up packet traffic flow tunnel" for each packet link, it would be obvious to consider at least one back-up packet traffic flow tunnel for each packet link for proper consideration of fault recovery for each packet link. Additionally, proper consideration for each packet link can lead to improved channel availability, as shown by the maximally-disjoint teaching of Ghani (p. 78, col. 2, l. 5).

Regarding step A, the "optical failure" implies that an optical link is taken out of service.

Regarding step B, a nested process is a common and obvious way to loop through each affected link.

Regarding step i, switching all affected traffic to the protection mechanism is the obviously intuitive way to treat affected traffic. Otherwise, traffic not on the protection mechanism would be lost.

Regarding steps ii and iii, one would obviously increment the capacity assignment for the packet and optical links traversed by the protection mechanism to their current assignment values.

Regarding step C, one would obviously do so to resume the normal "faultless" network operation condition.

Regarding "summing" capacity requirements, one would obviously do so to find total capacity requirements for the entire network.

Regarding claims 15, Iovanna in view of Nasrallah, Doverspike, and Ghani discloses:

A method for analyzing survivability of a simulated packet network (Iovanna, upper part of Fig. 2; Nasrallah, see the treatment of the "simulated" limitation under claim 1 above) and a simulated optical network over which the simulated packet network operates (Iovanna, lower part of Fig. 2; Nasrallah, see the treatment of the "simulated" limitation under claim 1 above), the simulated packet network representing a plurality of packet links between packet network nodes and the simulated optical network

representing a plurality of optical links between optical network nodes, wherein an optical failure (e.g., Doverspike, "fiber cuts" in paragraph [0004]) is known to occur within the simulated optical network and wherein packet link protection is performed in the simulated optical network (e.g., Doverspike, optical layer failure recovery in paragraph [0004]).

Iovanna in view of Nasrallah, Doverspike, and Ghani does not expressly disclose:

the method comprising the steps of:

(1) establishing at least one protection tunnel for each optical connection in the simulated optical network;

(2) performing a series of steps, as follows, for each optical link in the simulated optical network:

A. taking an optical link out of service;

B. switching all affected optical connections to an at least one protection tunnel;

C. incrementing capacity of each optical link traversed by the at least one protection tunnel; and

D. restoring initial capacity values; and

(3) summing the optical link capacity requirements.

Regarding "establishing at least one protection tunnel" for each optical connection, it would be obvious to consider at least one protection tunnel for each optical connection for proper consideration of fault recovery for each optical connection. Additionally, proper consideration for each optical connection can lead to improved channel availability, as shown by the maximally-disjoint teaching of Ghani (p. 78, col. 2, l. 5).

Regarding step A, the "optical failure" implies that an optical link is taken out of service.

Regarding step B, switching all affected traffic to the protection mechanism is the obviously intuitive way to treat affected traffic. Otherwise, traffic not on the protection mechanism would be lost.

Regarding step C, one would obviously increment the capacity assignment for the optical links traversed by the protection mechanism to their current assignment values.

Regarding step D, one would obviously do so to resume the normal "faultless" network operation condition.

Regarding "summing" capacity requirements, one would obviously do so to find total capacity requirements for the optical network.

Regarding claims 16, Iovanna in view of Nasrallah, Doverspike, and Ghani discloses:

The method according to claim 14, wherein the packet traffic flow is LSP (Label Switch Path) traffic flow (Iovanna, paragraph [0054]).

Regarding claims 28-32, claims 28, 29, 30, 31, and 32 are computer usable medium claims that introduce limitations that correspond to the limitations introduced by method claims 12, 13, 14, 15, and 16, respectively. Therefore, the recited steps in method claims 12-16 read on the corresponding limitations in computer usable medium claims 28-32.

Response to Arguments

11. Applicant's arguments filed 14 September 2007 have been fully considered but they are not persuasive. Applicant presents three salient points.

Regarding the first point, Applicant states:

> "With regard to claim 1, the Examiner asserts that Iovanna et al. discloses 'a method for co-modelling a packet network operating over an optical network, the method comprising generating a cost parameter based on a simulated packet network comprising packet network topology information and packet traffic information; and generating a basic optical capacity based on a simulated packet transport network comprising optical network topology information and the basic packet capacity'.
>
> The Examiner has equated the limitation of 'generating a basic packet capacity', which is what is actually recited in claim 1, with 'generating a cost parameter'. The Examiner states that Iovanna et al. does not specifically disclose that the cost parameter comprises a basic packet capacity, but alleges it would have been obvious to employ a cost parameter that comprises a basic packet capacity. Amended claim 1 recites 'a basic packet capacity comprising a capacity value for each optical link'. Applicant submits that a 'cost parameter', as disclosed in Iovanna et al., is 'a first critical constraint or required resource' considered when assigning a weight function indicating the cost of using a link for the transport of a data packet in an actual network. Based on the assigned weight functions for each path, an optimized path is determined for a source destination node pair in the actual network, Iovanna et al. does not perform generating a cost parameter comprising a capacity value for each packet link based on packet network topology information and packet traffic information, but instead utilizes a cost parameter to aid in determining an optimal path through the network.
>
> The Examiner equates the basic optical capacity with 'the availability of bandwidth at the wavelength level' disclosed in paragraph [0071]. Amended claim 1 recites 'a basic optical capacity comprising a capacity value for each optical link', Iovanna et al. does not perform generating a basic optical capacity comprising a capacity value for each optical link based on optical network topology information and the basic packet capacity, but instead utilizes information related to a

known available optical capacity for possible physical links to aid in determining an optimal path through the network.

Claim 1 can be said to be essentially directed to generating a capacity for each of the respective links of the simulated packet network and the simulated optical network of the co-modelled simulated packet network. This enables design and/or analysis of networks based on desired/expected packet network topology information, packet traffic information, and optical network topology information" (REMARKS/ARGUMENTS, p. 22-23, emphasis Applicant's).

Regarding "for each optical link", notice the teaching from Iovanna of the loop for other links through step 545 in Fig. 5. Regarding "generating" vs. "utilizing", utilization of an object implies that the object is generated before it is utilized. Accordingly, this point is not persuasive.

Regarding the second point, Applicant states:

"Iovanna et al. does not disclose generating either 'generating a basic packet capacity comprising a capacity value for each packet link based on packet network topology information and packet traffic information' and 'generating a basic optical capacity comprising a capacity value for each optical link based on optical network topology information and the basic packet capacity' as, with respect, Iovanna et al. is not directed to co-modelling a simulated packet network and a simulated optical network. Instead, Iovanna et al. is directed to strategies for dynamically routing data packets for a respective source-destination node pair of a plurality of node pairs in an actual network. The disclosure of Iovanna et al. is intended to be used in an actual network topology for routing data packets by using parameters that define predetermined critical network constraints, for example, the sum of all available bandwidth of the physical links or the actual bandwidth available over single physical links (paragraph [0031]). On the other hand, the subject matter of the claims of the present application is directed to use with simulated packet network and the simulated optical network over which the simulated packet network operates. As such, the subject matter of the present application can be used for planning and designing packet networks to define and analyze the capacities that can/should be used over respective links of a network that is being simulated, Applicant submits that the use of the expressions 'co-modelling', 'simulated packet network', 'simulated optical network' clearly indicate that the subject matter of the present claims is directed to generating values, i.e. a basic packet capacity and a basic optical capacity, for a representation of a network, not for use in dynamic path routing of data packets in actual operation of a network.

For at least the above reasons, Applicant submits that Iovanna et al. does not disclose all the limitations of claim 1. As such, the Examiner has failed to satisfy the requirement that all limitations must be disclosed by the cited reference, as is necessary to establish a *prima facie* case of obviousness" (REMARKS/ARGUMENTS, p. 23-24, emphasis Applicant's).

Regarding this discussion of a "simulated" vs. an "actual" network, notice that the standing rejections address this issue with teachings about simulated networks from Nasrallah (see the treatment of claim 1 above for details). Accordingly, this point is not persuasive.

Regarding the third point, Applicant states:

"Claim 8 recites similar subject matter to claim 1, along with an additional limitation of performing analysis on the simulated packet network and the simulated optical network over which the simulated packet network operates...

With regard to the additional limitation, the Examiner alleges that Iovanna discloses 'performing analysis on the simulated packet network and the simulated optical network over

which the simulated packet network operates' in the form of block 565 of Figure 5 and the results illustrated in Figures 6-9. Block 565 of Figure 5 is a step in a method of determining an optimal path between two nodes of a network. Paragraph [0080] of Iovanna et al. discloses 'If more than one link is available, a criterion is applied at step 565 to select the most appropriate physical link, as will be better detailed hereafter, otherwise the only available one is picked'. Applicant submits that the step of block 565 is totally unrelated to performing analysis on a simulated network, it is merely detected to a manner of selecting an appropriate physical link for routing a data packet in an actual network. Applicant submits what is illustrated in Figures 6-9, is not 'performing analysis on the simulated packet network and the simulated optical network over which the simulated packet network operates' as recited in claim 8. The results illustrated in Figures 6-9 are comparisons of performance using different criteria in the choice of physical links [0044]. The figures compare results achieved by a method of the proposed invention of Iovanna et al. to other known ways to perform a similar activity.

For at least the reasons discussed above, Applicant submits that Iovanna et al. does not disclose all the limitations of claim 8. As such, the Examiner has failed to satisfy the requirement that all limitations must be disclosed by the cited reference, as is necessary to establish a *prima facie* case of obviousness.

Claims 2 to 4 are dependent upon claim 1. Claims 9 and 11 are dependent upon claim 8. Applicant does not concede that the additional features recited in these dependent claims are found in Iovanna et al. as set out by the Examiner. However, it is respectfully submitted that it is not necessary to address these issues at this time in view of the strong case for patentability of independent claim 1 or 8. Claims 17 to 20, 24, 25 and 27 recite similar subject matter to claims 1-4, 8, 9 and 11 in the form of computer readable medium claims, and are likewise submitted to patentably distinguish over Iovanna et al." (REMARKS/ARGUMENTS, p. 24-25, emphasis Applicant's).

Examiner respectfully notes that the application of a criterion at step 565 is an example of analysis.

Furthermore, in view of Nasrallah, this application would be performed on simulated networks.

Accordingly, this point is not persuasive.

Summarily, Applicant's arguments are not persuasive. Accordingly, Examiner respectfully maintains the standing rejections.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER